

Marketing Bulletin

DATE: May 20, 2003
TO: Affected Customers
FROM: Mark Stoner
RE: Product Termination

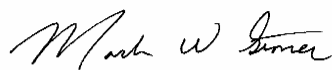
To all concerned parties,

This bulletin is to notify all customers of the termination of the following Ecliptek series effective May 14th, 2003:

| Series | Description | Recommended Replacement |
|---------------|------------------------------------|--------------------------------|
| E11C1 | Four Pad SMD PECL Oscillator, 5V | E11J1 or E11W1 |
| E13C1 | Four Pad SMD PECL Oscillator, 3.3V | E13J1 or E13W1 |
| E11C2 | Six Pad SMD PECL Oscillator, 5V | E11J2 or E11W2 |
| E13C2 | Six Pad SMD PECL Oscillator, 3.3V | E13J2 or E13W2 |
| E31C2 | Six Pad SMD PECL VCXO, 5V | E31J2 or E31W2 |
| E32C2 | Six Pad SMD PECL VCXO, 3.3V | E32J2 or E32W2 |

Because of the circumstances surrounding this termination, there will be no end-of-life policy exercised. The series will be terminated with no purchasing or lifetime buy window available. All of us at Ecliptek Corporation apologize for any inconvenience this may have caused and can assure you we are taking measures to insure this will not happen again in the future.

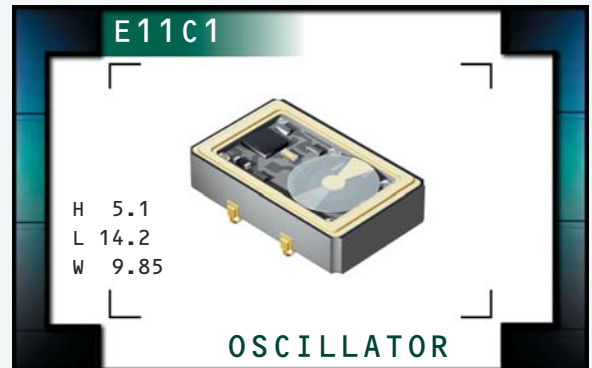
Best Regards,



Mark W. Stoner
Director of Marketing
Ecliptek Corporation

E11C1 Series

- PECL Output Oscillators
- 5.0V supply voltage
- 4 pad ceramic SMD package with J-leads
- Stability to 20ppm
- Output Enable/Disable available
- Complementary Output available
- Available on Tape and Reel



NOTES

OBSOLETE

ELECTRICAL SPECIFICATIONS

| | | |
|--|--|---|
| Frequency Range | | 19.440MHz to 212.500MHz |
| Operating Temperature Range | | 0°C to 70°C or -40°C to 85°C |
| Storage Temperature Range | | -55°C to 125°C |
| Supply Voltage (V_{CC}) | | 5.0V _{DC} ±5% |
| Input Current | | 100mA Maximum |
| Logic Type | | 100KH |
| Frequency Tolerance / Stability | | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±100ppm, ±50ppm, ±25ppm, or ±20ppm Maximum |
| Output Voltage Logic High (V_{OH}) | | $V_{CC}-1.025V_{DC}$ Minimum |
| Output Voltage Logic Low (V_{OL}) | | $V_{CC}-1.620V_{DC}$ Maximum |
| Rise Time / Fall Time | | 20% to 80% of waveform 2 nSeconds Maximum |
| Duty Cycle | | at 50% of waveform 50 ±10(%) 50 ±5(%) |
| Load Drive Capability | | 50 Ohms into $V_{CC}-2.0V_{DC}$ |
| Logic Control / Additional Output | | No Connect, Enable/Disable, or Complementary Output |
| Enable/Disable Input Voltage | | V_{IL} of $V_{CC}-1.475V_{DC}$ Maximum No Connection V_{IH} of $V_{CC}-1.165V_{DC}$ Minimum Enables Output Enables Output Disables Output: Logic Low, Disables Complementary Output: Logic High |
| Start Up Time | | 10 mSeconds Maximum |
| RMS Phase Jitter | | FJ = 12kHz to 20MHz 1 pSec Maximum |

| | | | | | | |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|
| MANUFACTURER ECLIPTEK CORP. | CATEGORY OSCILLATOR | SERIES E11C1 | PACKAGE CERAMIC | VOLTAGE 5.0V | CLASS OS65 | REV. DATE 10/02 |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|

PART NUMBERING GUIDE

E11C1 F 2 C - 155.520M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

C=±100ppm Maximum over 0°C to +70°C
D=±50ppm Maximum over 0°C to +70°C
E=±25ppm Maximum over 0°C to +70°C
F=±20ppm Maximum over 0°C to +70°C
G=±100ppm Maximum over -40°C to +85°C
H=±50ppm Maximum over -40°C to +85°C

DUTY CYCLE

1=50% ±10%, 2=50% ±5%

AVAILABLE OPTIONS

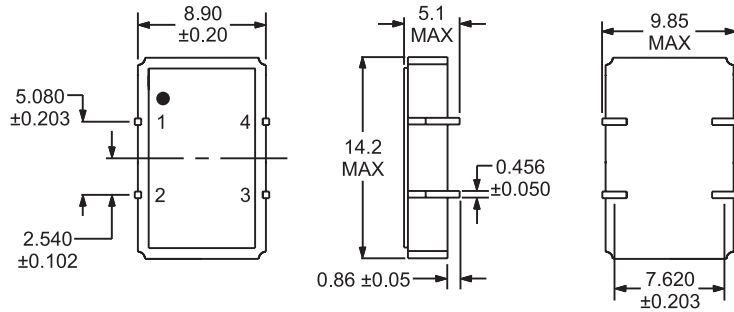
Blank=Tubes
TR=Tape and Reel (Standard)

FREQUENCY

LOGIC CONTROL/ADDITIONAL OUTPUT

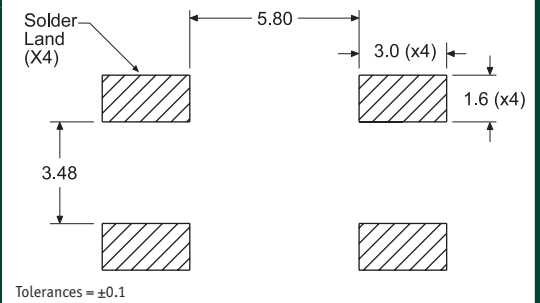
A=No Connect
B=Enable/Disable
C=Complementary Output

MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS

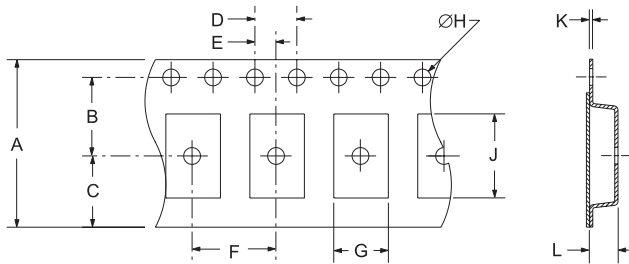


Pin 1: Complementary Output, No Connect, or Enable/Disable
Pin 2: Case Ground Pin 3: Output Pin 4: Supply Voltage

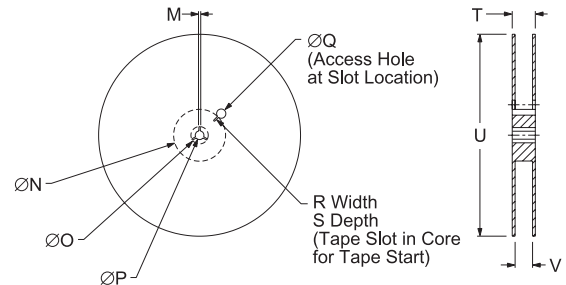
SUGGESTED SOLDER PAD LAYOUT ALL DIMENSIONS IN MILLIMETERS



TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



| TAPE | A | B | C | D | E |
|-------|-------|----------|----------|---------|------|
| | 24 ±3 | 11.5 ±1 | 10.75 ±1 | 4 ±2 | 2 ±1 |
| F | G | H | J | K | L |
| 12 ±1 | B0* | 1.5 ±1.0 | A0* | .4 ±.05 | K0* |



| REEL | M | N | O | P | Q |
|---------|---------|----------|----------|-----------|----------|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13 ±2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| 2.5 MIN | 10 MIN | 30.4 MAX | 360 MAX | 24.4 ±2.0 | 1000 |

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic | Specification |
|--------------------|--|
| Seal Integrity | Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds |
| Solderability | ≥ 63 Solder dip at +30°C ±5°C for 5 seconds /95% coverage. |
| Marking Permanency | 1000 Strokes with brush after 1 minute soak in solvent, 3 times. |
| Shock | of 20cm. |
| Vibration | Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours. |

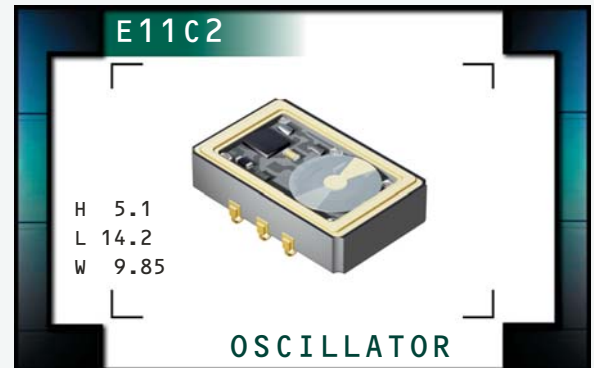
MARKING SPECIFICATIONS

| | |
|------------------|--|
| Line 1: ECLIPTEK | |
| Line 2: XX.XXX M | Frequency in MHz (5 Digits Maximum + Decimal) |
| Line 3: XX Y ZZ | Week of Year Last Digit of Year Eclipse Manufacturing Identifier |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E11C1 | CERAMIC | 5.0V | OS65 | 10/02 |

E11C2 Series

- PECL Output Oscillators
- 5.0V supply voltage
- 6 pad ceramic SMD package with J-leads
- Stability to 20ppm
- Output Enable/Disable available
- Complementary Output available
- Available on Tape and Reel



NOTES

OBSOLETE

ELECTRICAL SPECIFICATIONS

| | | |
|--|--|--|
| Frequency Range | | 19.440MHz to 212.500MHz |
| Operating Temperature Range | | 0°C to 70°C or -40°C to 85°C |
| Storage Temperature Range | | -55°C to 125°C |
| Supply Voltage (V_{CC}) | | 5.0V _{DC} ±5% |
| Input Current | | 100mA Maximum |
| Logic Type | | 100KH |
| Frequency Tolerance / Stability | | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±100ppm, ±50ppm, ±25ppm, or ±20ppm Maximum |
| Output Voltage Logic High (V_{OH}) | | $V_{CC}-1.025V_{DC}$ Minimum |
| Output Voltage Logic Low (V_{OL}) | | $V_{CC}-1.620V_{DC}$ Maximum |
| Rise Time / Fall Time | | 20% to 80% of waveform 2 nSeconds Maximum |
| Duty Cycle | | at 50% of waveform 50 ±10(%) 50 ±5(%) |
| Load Drive Capability | | 50 Ohms into $V_{CC}-2.0V_{DC}$ |
| Logic Control / Additional Output | | No Connect, Enable/Disable, Complementary Output, or Complementary Output and Enable/Disable |
| Enable/Disable Input Voltage | | V_{IL} of $V_{CC}-1.475V_{DC}$ Maximum No Connection V_{IH} of $V_{CC}-1.165V_{DC}$ Minimum Enables Output Enables Output Disables Output: Logic Low Disables Complementary Output: Logic High |
| Start Up Time | | 10 mSeconds Maximum |
| RMS Phase Jitter | | FJ = 12kHz to 20MHz 1 pSec Maximum |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E11C2 | CERAMIC | 5.0V | OS66 | 10/02 |

PART NUMBERING GUIDE

E11C2 F 2 C - 155.520M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

C=±100ppm Maximum over 0°C to +70°C
D=±50ppm Maximum over 0°C to +70°C
E=±25ppm Maximum over 0°C to +70°C
F=±20ppm Maximum over 0°C to +70°C
G=±100ppm Maximum over -40°C to +85°C
H=±50ppm Maximum over -40°C to +85°C

DUTY CYCLE

1=50% ±10%, 2=50% ±5%

AVAILABLE OPTIONS

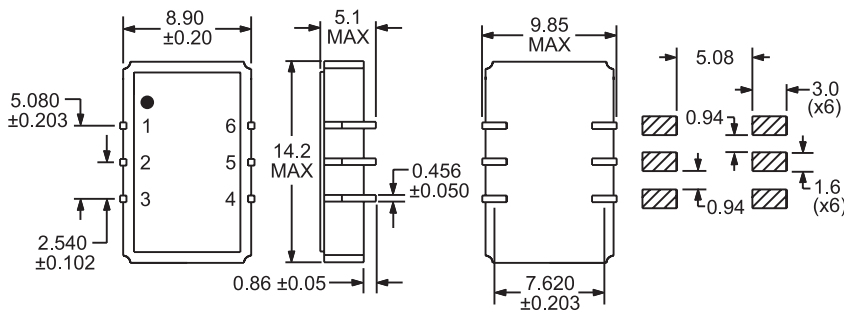
Blank=Tubes
TR=Tape and Reel (Standard)

FREQUENCY

LOGIC CONTROL/ADDITIONAL OUTPUT

A=No Connect
B=Enable/Disable
C=Complementary Output
D=Complementary Output and Enable/Disable
E=Complementary Output (Alt. Pin Configuration)
G=Complementary Output and Enable/Disable (Alt. Pin Configuration)

MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



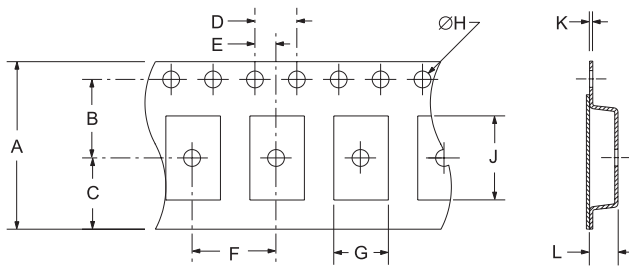
PIN CONNECTIONS TABLE

| Logic Control/Additional Output Option | | | | | | |
|--|-----|-----|-----|-----|-----|-----|
| PIN | A | B | C | D | E | G |
| 1 | N/C | N/C | Q' | Q' | N/C | N/C |
| 2 | N/C | E/D | N/C | E/D | N/C | E/D |
| 3 | GND | GND | GND | GND | GND | GND |
| 4 | Q | Q | Q | Q | Q | Q |
| 5 | N/C | N/C | N/C | N/C | Q' | Q' |
| 6 | Vdd | Vdd | Vdd | Vdd | Vdd | Vdd |

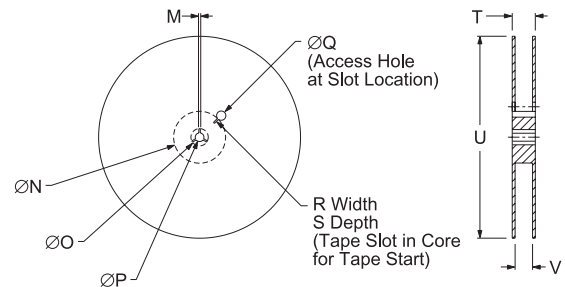
N/C = No Connect
GND = Case Ground
Q = Output

Q' = Complementary Output
E/D = Enable/Disable
Vdd = Supply Voltage

TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



| TAPE | A | B | C | D | E |
|------|-------|---------|----------|------|---------|
| | 24 ±3 | 11.5 ±1 | 10.75 ±1 | 4 ±2 | 2 ±1 |
| F | G | H | J | K | L |
| | 12 ±1 | B0* | 1.5 ±1-0 | A0* | .4 ±.05 |



| REEL | M | N | O | P | Q |
|------|---------|--------|----------|---------|----------|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13 ±2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| | 2.5 MIN | 10 MIN | 30.4 MAX | 360 MAX | 24.4+2-0 |

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic | Specification |
|----------------|--|
| Seal Integrity | Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds minimum (internal crystal only). |
| Solderability | Sn62 Solder dip at +230°C ±5°C for 5 seconds / 95% coverage. |
| Shock | Random drop on hard wooden plate 3 times from a height of 20cm. |
| Vibration | Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours. |

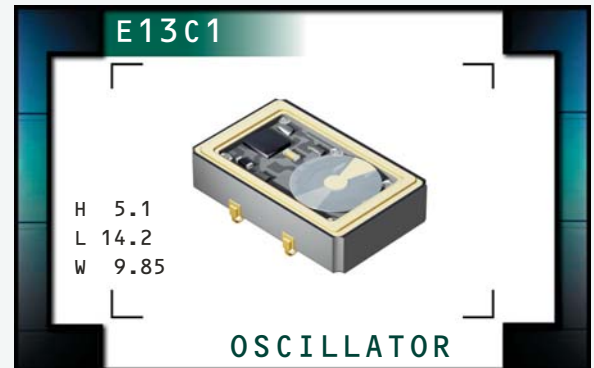
MARKING SPECIFICATIONS

| | |
|------------------|--|
| Line 1: ECLIPTEK | |
| Line 2: XX.XXX M | Frequency in MHz (5 Digits Maximum + Decimal) |
| Line 3: XX Y ZZ | Week of Year Last Digit of Year Eclipse Manufacturing Identifier |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E11C2 | CERAMIC | 5.0V | OS66 | 10/02 |

E13C1 Series

- PECL Output Oscillators
- 3.3V supply voltage
- 4 pad ceramic SMD package with J-leads
- Stability to 20ppm
- Output Enable/Disable available
- Complementary Output available
- Available on Tape and Reel



NOTES

OBSOLETE

ELECTRICAL SPECIFICATIONS

| | | |
|--|--|---|
| Frequency Range | | 19.440MHz to 212.500MHz |
| Operating Temperature Range | | 0°C to 70°C or -40°C to 85°C |
| Storage Temperature Range | | -55°C to 125°C |
| Supply Voltage (V _{CC}) | | 3.3V _{DC} ±5% |
| Input Current | | 75mA Maximum |
| Logic Type | | 100KH |
| Frequency Tolerance / Stability | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years | ±100ppm, ±50ppm, ±25ppm, or ±20ppm Maximum |
| Output Voltage Logic High (V _{OH}) | | V _{CC} -1.025V _{DC} Minimum |
| Output Voltage Logic Low (V _{OL}) | | V _{CC} -1.620V _{DC} Maximum |
| Rise Time / Fall Time | 20% to 80% of waveform | 2 nSeconds Maximum |
| Duty Cycle | at 50% of waveform | 50 ±10(%) |
| | | 50 ±5(%) |
| Load Drive Capability | | 50 Ohms into V _{CC} -2.0V _{DC} |
| Logic Control / Additional Output | | No Connect, Enable/Disable, or Complementary Output |
| Enable/Disable Input Voltage | V _{IL} of V _{CC} -1.475V _{DC} Maximum | Enables Output |
| | No Connection | Enables Output |
| | V _{IH} of V _{CC} -1.165V _{DC} Minimum | Disable Output: Logic Low |
| | | Disables Complementary Output: Logic High |
| Start Up Time | | 10 mSeconds Maximum |
| RMS Phase Jitter | FJ = 12kHz to 20MHz | 1 pSec Maximum |

| | | | | | | |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|
| MANUFACTURER ECLIPTEK CORP. | CATEGORY OSCILLATOR | SERIES E13C1 | PACKAGE CERAMIC | VOLTAGE 3.3V | CLASS OS63 | REV. DATE 10/02 |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|

PART NUMBERING GUIDE

E13C1 F 2 C - 155.520M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

C=±100ppm Maximum over 0°C to +70°C
D=±50ppm Maximum over 0°C to +70°C
E=±25ppm Maximum over 0°C to +70°C
F=±20ppm Maximum over 0°C to +70°C
G=±100ppm Maximum over -40°C to +85°C
H=±50ppm Maximum over -40°C to +85°C

DUTY CYCLE

1=50% ±10%, 2=50% ±5%

AVAILABLE OPTIONS

Blank=Tubes
TR=Tape and Reel (Standard)

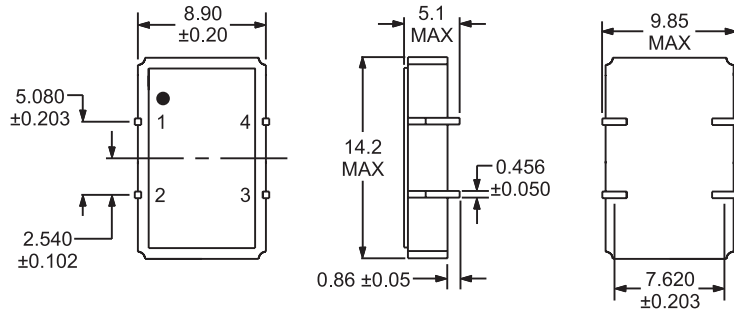
FREQUENCY

LOGIC CONTROL/ADDITIONAL OUTPUT

A=No Connect
B=Enable/Disable
C=Complementary Output

MECHANICAL DIMENSIONS

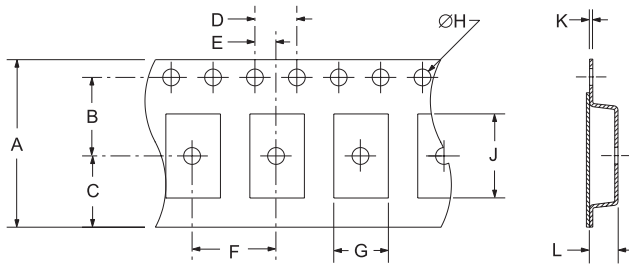
ALL DIMENSIONS IN MILLIMETERS



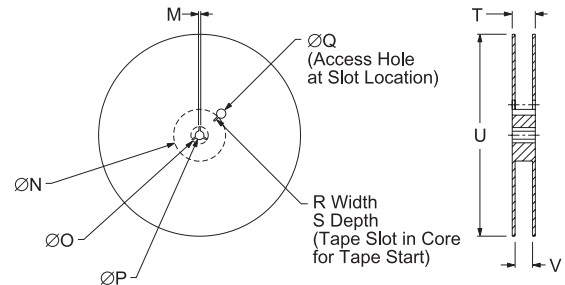
Pin 1: Complementary Output, No Connect, or Enable/Disable
Pin 2: Case Ground Pin 3: Output Pin 4: Supply Voltage

TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



| TAPE | A | B | C | D | E |
|------|-------|---------|----------|------|---------|
| | 24 ±3 | 11.5 ±1 | 10.75 ±1 | 4 ±2 | 2 ±1 |
| F | G | H | J | K | L |
| | 12 ±1 | B0* | 1.5 ±1-0 | A0* | .4 ±.05 |



| REEL | M | N | O | P | Q |
|------|---------|--------|----------|---------|-----------|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13 ±2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| | 2.5 MIN | 10 MIN | 30.4 MAX | 360 MAX | 24.4 ±2-0 |

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| | |
|--------------------|--|
| Seal Integrity | Substitute to 100% Perfluorocarbon at +125°C ±5° for 60 seconds. Minimum (internal crystal only). |
| Solderability | Sn63 Solder dip at +230°C ±5°C for 5 seconds/95% coverage. |
| Marking Permanency | 10 Strokes with brush after 1 minute soak in solvent, 3 times. |
| Shock | Random drop on hard wooden plate 3 times from a height of 20cm. |
| Vibration | Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours. |

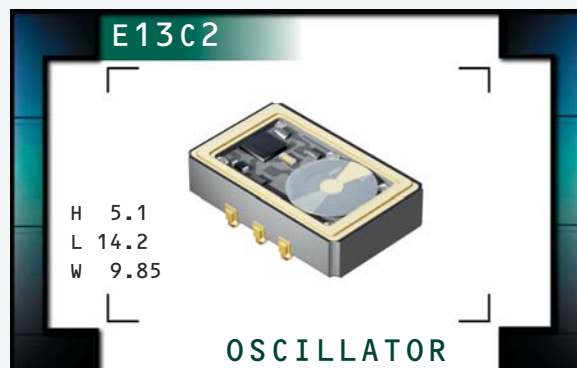
MARKING SPECIFICATIONS

| | |
|------------------|--|
| Line 1: ECLIPTEK | |
| Line 2: XX.XXX M | Frequency in MHz (5 Digits Maximum + Decimal) |
| Line 3: XX Y ZZ | Week of Year Last Digit of Year Eclipse Manufacturing Identifier |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E13C1 | CERAMIC | 3.3V | OS63 | 10/02 |

E13C2 Series

- PECL Output Oscillators
- 3.3V supply voltage
- 6 pad ceramic SMD package with J-leads
- Stability to 20ppm
- Output Enable/Disable available
- Complementary Output available
- Available on Tape and Reel



NOTES

OBSOLETE

ELECTRICAL SPECIFICATIONS

| | | |
|--|--|--|
| Frequency Range | | 19.440MHz to 212.500MHz |
| Operating Temperature Range | | 0°C to 70°C or -40°C to 85°C |
| Storage Temperature Range | | -55°C to 125°C |
| Supply Voltage (V_{CC}) | | 3.3V _{DC} ±5% |
| Input Current | | 75mA Maximum |
| Logic Type | | 100KH |
| Frequency Tolerance / Stability | | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±100ppm, ±50ppm, ±25ppm, or ±20ppm Maximum |
| Output Voltage Logic High (V_{OH}) | | $V_{CC}-1.025V_{DC}$ Minimum |
| Output Voltage Logic Low (V_{OL}) | | $V_{CC}-1.620V_{DC}$ Maximum |
| Rise Time / Fall Time | | 20% to 80% of waveform 2 nSeconds Maximum |
| Duty Cycle | | at 50% of waveform 50 ±10(%) 50 ±5(%) |
| Load Drive Capability | | 50 Ohms into $V_{CC}-2.0V_{DC}$ |
| Logic Control / Additional Output | | No Connect, Enable/Disable, Complementary Output, or Complementary Output and Enable/Disable |
| Enable/Disable Input Voltage | | V_{IL} of $V_{CC}-1.475V_{DC}$ Maximum No Connection V_{IH} of $V_{CC}-1.165V_{DC}$ Minimum Enables Output Enables Output Disables Output: Logic Low Disables Complementary Output: Logic High |
| Start Up Time | | 10 mSeconds Maximum |
| RMS Phase Jitter | | FJ = 12kHz to 20MHz 1 pSec Maximum |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E13C2 | CERAMIC | 3.3V | OS64 | 10/02 |

PART NUMBERING GUIDE

E13C2 F 2 C - 155.520M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

C=±100ppm Maximum over 0°C to +70°C
D=±50ppm Maximum over 0°C to +70°C
E=±25ppm Maximum over 0°C to +70°C
F=±20ppm Maximum over 0°C to +70°C
G=±100ppm Maximum over -40°C to +85°C
H=±50ppm Maximum over -40°C to +85°C

DUTY CYCLE

1=50% ±10%, 2=50% ±5%

AVAILABLE OPTIONS

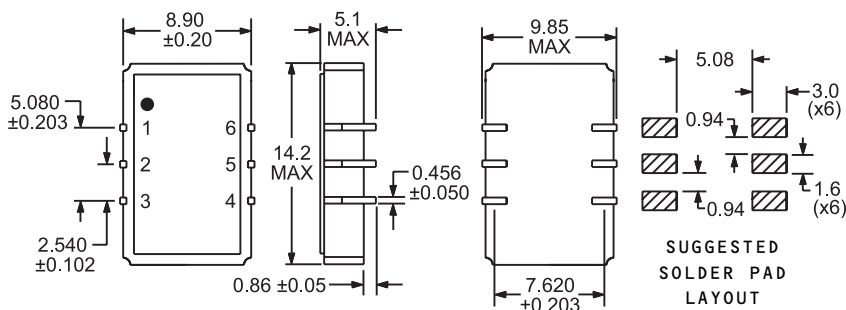
Blank=Tubes
TR=Tape and Reel (Standard)

FREQUENCY

LOGIC CONTROL/ADDITIONAL OUTPUT

A=No Connect
B=Enable/Disable
C=Complementary Output
D=Complementary Output and Enable/Disable
E=Complementary Output (Alt. Pin Configuration)
G=Complementary Output and Enable/Disable (Alt. Pin Configuration)

MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



SUGGESTED
SOLDER PAD
LAYOUT

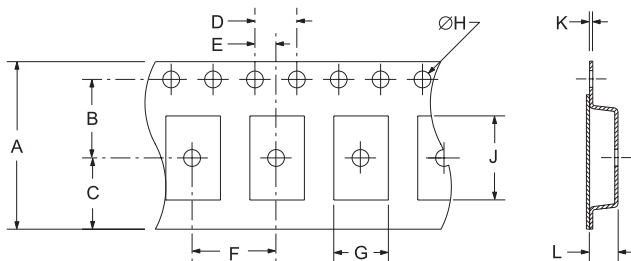
PIN CONNECTIONS TABLE

| Logic Control/Additional Output Option | | | | | | |
|--|-----|-----|-----|-----|-----|-----|
| PIN | A | B | C | D | E | G |
| 1 | N/C | N/C | Q' | Q' | N/C | N/C |
| 2 | N/C | E/D | N/C | E/D | N/C | E/D |
| 3 | GND | GND | GND | GND | GND | GND |
| 4 | Q | Q | Q | Q | Q | Q |
| 5 | N/C | N/C | N/C | N/C | Q' | Q' |
| 6 | Vdd | Vdd | Vdd | Vdd | Vdd | Vdd |

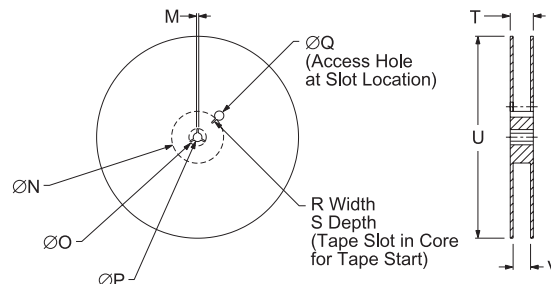
N/C = No Connect
GND = Case Ground
Q = Output

Q' = Complementary Output
E/D = Enable/Disable
Vdd = Supply Voltage

TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



| TAPE | A | B | C | D | E |
|------|-------|---------|----------|------|---------|
| | 24 ±3 | 11.5 ±1 | 10.75 ±1 | 4 ±2 | 2 ±1 |
| F | G | H | J | K | L |
| | 12 ±1 | B0* | 1.5 ±1-0 | A0* | .4 ±.05 |
| | | | | | K0* |



| REEL | M | N | O | P | Q |
|------|---------|--------|----------|---------|----------|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13 ±2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| | 2.5 MIN | 10 MIN | 30.4 MAX | 360 MAX | 24.4+2-0 |
| | | | | | 1000 |

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic | Specification |
|--------------------|--|
| Seal Integrity | Double test in Tetrahydrofuran at +125°C for 60 seconds minimum (internal crystal only). |
| Solderability | Sn63 Solder dip at +230°C for 10 seconds/ 100% coverage. |
| Marking Permanency | 10 Strokes with brush after 1 minute soak in solvent. 3 times. |
| Shock | Random drop on hard wooden plate 3 times from a height of 20cm. |
| Vibration | Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours. |

MARKING SPECIFICATIONS

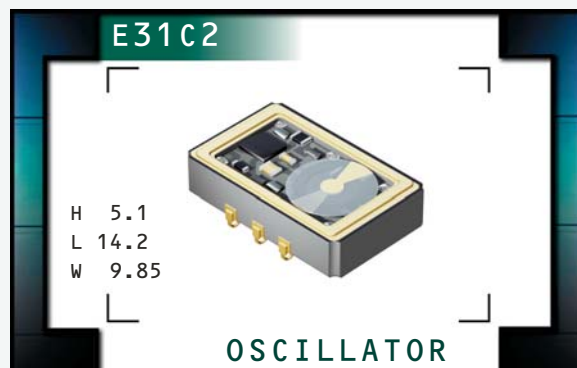
| | |
|------------------|--|
| Line 1: ECLIPTEK | |
| Line 2: XX.XXX M | Frequency in MHz (5 Digits Maximum + Decimal) |
| Line 3: XX Y ZZ | Week of Year Last Digit of Year Eclipse Manufacturing Identifier |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E13C2 | CERAMIC | 3.3V | OS64 | 10/02 |

E31C2 Series



- PECL Output VCXO
- 5.0V supply voltage
- 6 pad ceramic SMD package with J-leads
- Stability to 20ppm
- Output Enable/Disable available
- Complementary Output available
- Available on Tape and Reel



ELECTRICAL SPECIFICATIONS

OBSOLETE

| | |
|--|--|
| Frequency Range | 19.440MHz to 83.333MHz |
| Operating Temperature Range | 0°C to 70°C or -40°C to 85°C |
| Storage Temperature Range | -55°C to 125°C |
| Supply Voltage (V_{CC}) | 5.0V _{DC} ±5% |
| Input Current | 100mA Maximum |
| Logic Type | 100KH |
| Frequency Tolerance / Stability | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±50ppm, ±25ppm, or ±20ppm Maximum |
| Output Voltage Logic High (V_{OH}) | $V_{CC}-1.025V_{DC}$ Minimum |
| Output Voltage Logic Low (V_{OL}) | $V_{CC}-1.620V_{DC}$ Maximum |
| Rise Time / Fall Time | 20% to 80% of waveform 2 nSeconds Maximum |
| Duty Cycle | at 50% of waveform 50 ±10(%) 50 ±5(%) |
| Load Drive Capability | 50 Ohms into $V_{CC}-2.0V_{DC}$ |
| Additional Output / Logic Control | No Connect and Single Output Enable/Disable and Single Output No Connect and Complementary Output or Enable/Disable and Complementary Output |
| Enable/Disable Input Voltage | V_{IL} of $V_{CC}-1.475V_{DC}$ Maximum No Connection V_{IH} of $V_{CC}-1.165V_{DC}$ Minimum Enables Output Enables Output Disables Output: Logic Low Disables Complementary Output: Logic High |
| Start Up Time | 10 mSeconds Maximum |
| RMS Phase Jitter | FJ = 12kHz to 20MHz 1 pSec Maximum |
| Absolute Pull Range (APR) | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±50ppm Minimum |
| Linearity | 20%, 15%, or 10% Maximum |
| Control Voltage (V_C): Test Conditions for APR | 2.5V _{DC} ±2.0V _{DC} |
| Control Voltage Range (V_{CR}) | 0.0V _{DC} to V_{CC} |
| Center Control Voltage | 2.5V _{DC} |
| Transfer Function | Positive Transfer Characteristic |
| Input Impedance | 50kOhms Typical |
| Modulation Bandwidth | at -3dB with Control Voltage of +2.5V _{DC} 10kHz Minimum |

| | | | | | | |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|
| MANUFACTURER ECLIPTEK CORP. | CATEGORY OSCILLATOR | SERIES E31C2 | PACKAGE CERAMIC | VOLTAGE 5.0V | CLASS 0S68 | REV. DATE 10/02 |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|

PART NUMBERING GUIDE

E31C2 F 3 A 2 C - 77.760M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

D=±50ppm Maximum over 0°C to +70°C
E=±25ppm Maximum over 0°C to +70°C
F=±20ppm Maximum over 0°C to +70°C
H=±50ppm Maximum over -40°C to +85°C

APR

3=±50ppm Minimum

LINEARITY

A=20%
B=15%
C=10%

AVAILABLE OPTIONS

Blank=Tubes
TR = Tape and Reel (Standard)

FREQUENCY

ADDITIONAL OUTPUT/LOGIC CONTROL

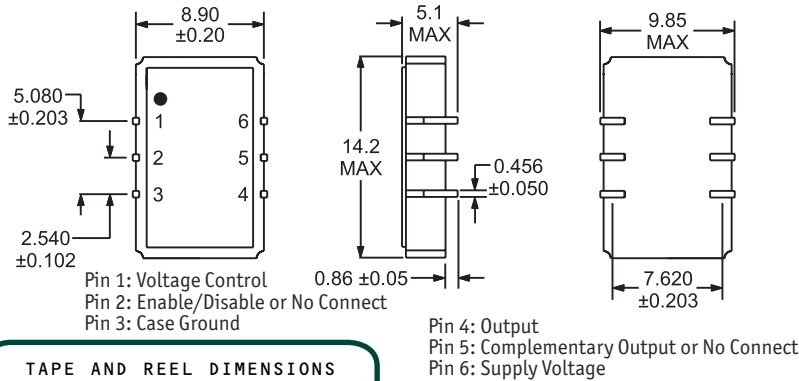
A=No Connect and Single Output
B=Enable/Disable and Single Output
C=No Connect and Complementary Output
D=Enable/Disable and Complementary Output

DUTY CYCLE

1=50 ±10(%), 2=50 ±5(%)

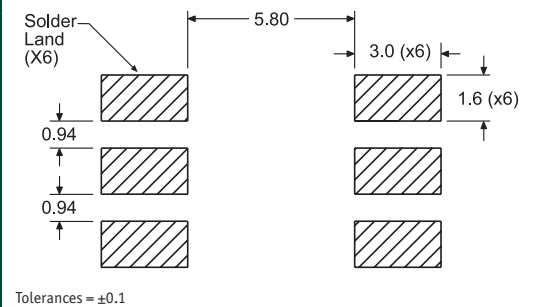
MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



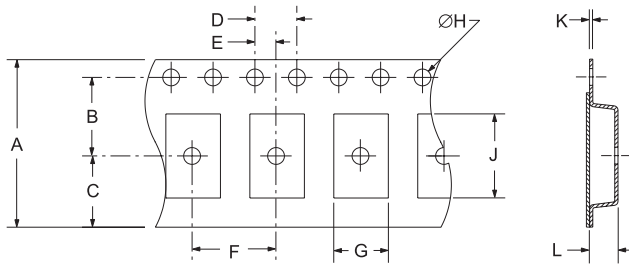
SUGGESTED SOLDER PAD LAYOUT

ALL DIMENSIONS IN MILLIMETERS

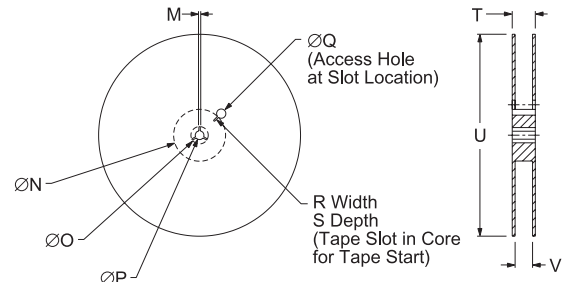


TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



| TAPE | A | B | C | D | E |
|--------|--------|-----------|-----------|---------|-------|
| | 24 ±.3 | 11.5 ±.1 | 10.75 ±.1 | 4 ±.2 | 2 ±.1 |
| F | G | H | J | K | L |
| 12 ±.1 | B0* | 1.5 ±.1-0 | A0* | .4 ±.05 | K0* |



| REEL | M | N | O | P | Q |
|---------|---------|----------|----------|-----------|----------|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13 ±.2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| 2.5 MIN | 10 MIN | 30.4 MAX | 360 MAX | 24.4 ±2-0 | 1000 |

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic | Specification |
|---------------------|--|
| Frequency Stability | ±20ppm Maximum over 0°C to +70°C (minimum (internal crystal only)). |
| Solderability | 5-63 Solder dip at +30°C ±2°C for 5 seconds/ 5% coverage. |
| Marking Permanency | 10 Strokes with brush after 1 minute soak in solvent, 3 times. |
| Shock | Random drop on hard wooden plate 3 times from a height of 20cm. |
| Vibration | Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours. |

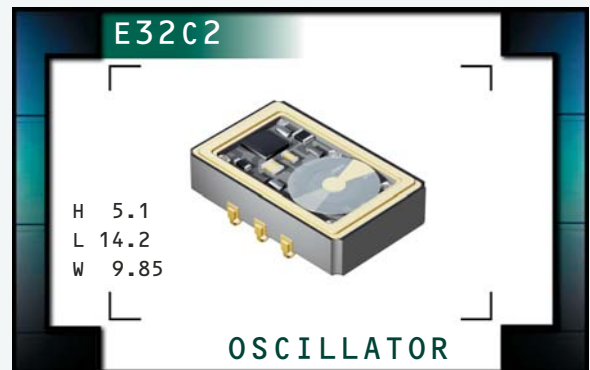
MARKING SPECIFICATIONS

| | |
|------------------|--|
| Line 1: ECLIPTEK | |
| Line 2: XX.XXX M | Frequency in MHz (5 Digits Maximum + Decimal) |
| Line 3: XX Y ZZ | Week of Year Last Digit of Year Eclipse Manufacturing Identifier |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E31C2 | CERAMIC | 5.0V | OS68 | 10/02 |

E32C2 Series

- PECL Output VCXO
- 3.3V supply voltage
- 6 pad ceramic SMD package with J-leads
- Stability to 20ppm
- Output Enable/Disable available
- Complementary Output available
- Available on Tape and Reel



ELECTRICAL SPECIFICATIONS

| | |
|--|--|
| Frequency Range | 19.440MHz to 83.333MHz |
| Operating Temperature Range | 0°C to 70°C or -40°C to 85°C |
| Storage Temperature Range | -55°C to 125°C |
| Supply Voltage (V_{CC}) | 3.3V _{DC} ±5% |
| Input Current | 75mA Maximum |
| Logic Type | 100KH |
| Frequency Tolerance / Stability | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±50ppm, ±25ppm, or ±20ppm Maximum |
| Output Voltage Logic High (V_{OH}) | $V_{CC}-1.025V_{DC}$ Minimum |
| Output Voltage Logic Low (V_{OL}) | $V_{CC}-1.620V_{DC}$ Maximum |
| Rise Time / Fall Time | 20% to 80% of waveform 2 nSeconds Maximum |
| Duty Cycle | at 50% of waveform 50 ±10(%) 50 ±5(%) |
| Load Drive Capability | 50 Ohms into $V_{CC}-2.0V_{DC}$ |
| Additional Output / Logic Control | No Connect and Single Output Enable/Disable and Single Output No Connect and Complementary Output or Enable/Disable and Complementary Output |
| Enable/Disable Input Voltage | V_{IL} of $V_{CC}-1.475V_{DC}$ Maximum No Connection V_{IH} of $V_{CC}-1.165V_{DC}$ Minimum Enables Output Enables Output Disables Output: Logic Low Disables Complementary Output: Logic High |
| Start Up Time | 10 mSeconds Maximum |
| RMS Phase Jitter | FJ = 12kHz to 20MHz 1 pSec Maximum |
| Absolute Pull Range (APR) | Inclusive of Operating Temp Range, Supply Voltage, Load, and Aging @25°C over 10 years ±50ppm Minimum |
| Linearity | 20%, 15%, or 10% Maximum |
| Control Voltage (V_C): Test Conditions for APR | 1.65V _{DC} ±1.35V _{DC} |
| Control Voltage Range (V_{CR}) | 0.0V _{DC} to V_{CC} |
| Center Control Voltage | 1.65V _{DC} |
| Transfer Function | Positive Transfer Characteristic |
| Input Impedance | 50kOhms Typical |
| Modulation Bandwidth | at -3dB with Control Voltage of +1.65V _{DC} 10kHz Minimum |

| | | | | | | |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|
| MANUFACTURER ECLIPTEK CORP. | CATEGORY OSCILLATOR | SERIES E32C2 | PACKAGE CERAMIC | VOLTAGE 3.3V | CLASS 0567 | REV. DATE 10/02 |
|--------------------------------|------------------------|-----------------|--------------------|-----------------|---------------|--------------------|

PART NUMBERING GUIDE

E32C2 F 3 A 2 C - 77.760M TR

FREQUENCY TOLERANCE & STABILITY/ OPERATING TEMPERATURE RANGE

D=±50ppm Maximum over 0°C to +70°C
E=±25ppm Maximum over 0°C to +70°C
F=±20ppm Maximum over 0°C to +70°C
H=±50ppm Maximum over -40°C to +85°C

APR

3=±50ppm Minimum

LINEARITY

A=20%
B=15%
C=10%

AVAILABLE OPTIONS

Blank=Tubes
TR = Tape and Reel (Standard)

FREQUENCY

ADDITIONAL OUTPUT/LOGIC CONTROL

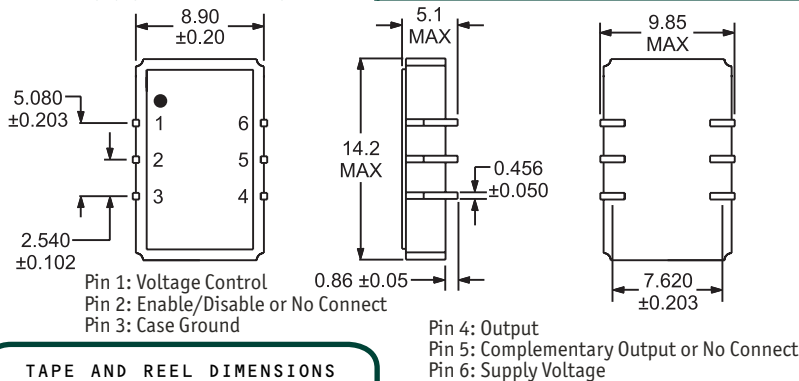
A=No Connect and Single Output
B=Enable/Disable and Single Output
C=No Connect and Complementary Output
D=Enable/Disable and Complementary Output

DUTY CYCLE

1=50 ±10(%), 2=50 ±5(%)

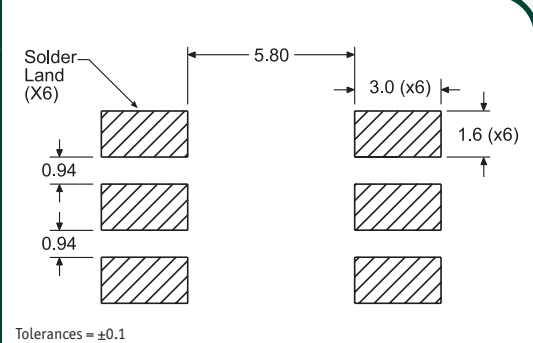
MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



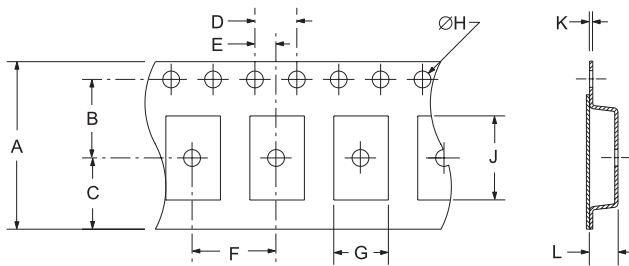
SUGGESTED SOLDER PAD LAYOUT

ALL DIMENSIONS IN MILLIMETERS

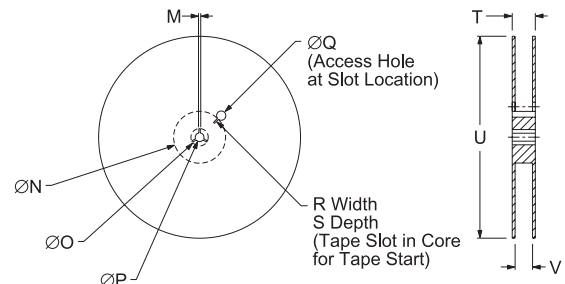


TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



| TAPE | A | B | C | D | E |
|-------|-------|----------|----------|---------|------|
| | 24 ±3 | 11.5 ±1 | 10.75 ±1 | 4 ±2 | 2 ±1 |
| F | G | H | J | K | L |
| 12 ±1 | B0* | 1.5 ±1.0 | A0* | .4 ±.05 | K0* |



| REEL | M | N | O | P | Q |
|---------|---------|----------|----------|-----------|----------|
| | 1.5 MIN | 50 MIN | 20.2 MIN | 13 ±2 | 40 MIN |
| R | S | T | U | V | QTY/REEL |
| 2.5 MIN | 10 MIN | 30.4 MAX | 360 MAX | 24.4 ±2.0 | 1000 |

*Compliant to EIA 481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

| Characteristic | Specification |
|---------------------|--|
| Seal Integrity | Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds (minimum for internal crystal only) |
| Solderability | 63 Solder dip at +130°C ±5°C for 5 seconds/95% coverage. |
| Moisture Resistance | 10 Cycle with bump, after 1 minute soak in solvent, 2 times |
| Shock | Random drop on hard wooden plate 3 times from a height of 20cm. |
| Vibration | Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X, Y and Z) for a total of 6 hours. |

MARKING SPECIFICATIONS

| | |
|------------------|--|
| Line 1: ECLIPTEK | |
| Line 2: XX.XXX M | Frequency in MHz (5 Digits Maximum + Decimal) |
| Line 3: XX YY ZZ | Week of Year Last Digit of Year Eclipse Manufacturing Identifier |

| MANUFACTURER | CATEGORY | SERIES | PACKAGE | VOLTAGE | CLASS | REV. DATE |
|----------------|------------|--------|---------|---------|-------|-----------|
| ECLIPTEK CORP. | OSCILLATOR | E32C2 | CERAMIC | 3.3V | OS67 | 10/02 |